

Claims:

1 1. A method for operating a base station to wirelessly transmit data
2 communications to a plurality of user terminals on a single wireless carrier, the method
3 comprising:

4 repeatedly and sequentially wirelessly transmitting time division multiplexed
5 superframes to the plurality of user terminals, wherein each time division multiplexed
6 superframe comprises a plurality of high speed data frames;

7 wherein each of the high speed data frames carries at least one data communication;
8 and

9 wherein each of the high speed data frames includes:
10 a respective indication of at least one user terminal for which the at least one data
11 communication is intended; and

12 a respective indication of at least one data rate of the high speed data frame.

1 2. The method of claim 1, further comprising supporting a plurality of data rates
2 within the high speed data frames of a single superframe.

1 3. The method of claim 1, further comprising supporting a plurality of coding
2 rates and modulation schemes within the high speed data frames of a single superframe.

1 4. The method of claim 1, further comprising coding the superframes with a
2 plurality of Walsh codes prior to their transmission.

1 5. The method of claim 1, further comprising:
2 coding the data communications of a high speed data frame using a first coding type;

3 and

4 coding the respective indicator of the high speed data frame using a second coding
5 type that is different from the first coding type.

1 6. The method of claim 1, wherein each of the high speed data frames further
2 includes:

3 a pilot signal; and

4 a plurality of reverse link power control bits intended for the plurality of user
5 terminals.

1 7. The method of claim 1, wherein:

2 a high speed data frame includes both a primary explicit data rate indicator and a
3 secondary explicit data rate indicator;

4 wherein the primary explicit data rate indicator indicates:

5 a user terminal of the plurality of user terminals for which a first portion of
6 the high speed data frame is intended; and

7 a data rate for the first portion of the high speed data frame; and

8 wherein the secondary explicit data rate indicator indicates a user terminal of the
9 plurality of user terminals for which a second portion of the high speed data frame is
10 intended.

1 ~~8.~~ A superframe embodied on a carrier wave that carries data communications
2 intended for a plurality of user terminals, the superframe comprising:

3 a plurality of high speed data frames;

4 wherein each of the high speed data frames carries at least one data communication;

5 and

6 wherein each of the high speed data frames includes:

7 a respective indication of at least one user terminal for which the at least one data

8 communication is intended; and

9 a respective indication of at least one data rate of the high speed data frame.

1 9. The superframe of claim 8, wherein each superframe supports a plurality of
2 data rates.

1 10. The superframe of claim 8, wherein each superframe supports a plurality of
2 coding rates and modulation schemes.

1 11. The superframe of claim 8, wherein the superframe is coded with a plurality
2 of Walsh codes prior to its transmission.

1 12. The superframe of claim 8, wherein:
2 the data communications of a high speed data frame are coded using a first coding
3 type; and
4 the respective indicator of the high speed data frame are coded using a second
5 coding type that is different than the first coding type.

1 13. The superframe of claim 8, wherein each of the high speed data frames of the
2 superframe further includes:

3 a pilot signal; and

4 a plurality of reverse link power control bits intended for the plurality of user

5 terminals.

1 14. The superframe of claim 8, wherein:

2 a high speed data frame of the superframe includes both a primary explicit data rate
3 indicator and a secondary explicit data rate indicator;

4 wherein the primary explicit data rate indicator indicates:

5 a user terminal of the plurality of user terminals for which a first portion of
6 the high speed data frame is intended; and

7 a data rate for the first portion of the high speed data frame; and

8 wherein the secondary explicit data rate indicator indicates a user terminal of the
9 plurality of user terminals for which a second portion of the high speed data frame is
10 intended.

1 ~~15~~ A method of operating a user terminal to wirelessly receive data
2 communications on a wireless carrier, the method comprising:

3 repeatedly and sequentially wirelessly receiving time division multiplexed
4 superframes from a base station, wherein each time division multiplexed superframe
5 comprises a plurality of high speed data frames that are intended for a plurality of user
6 terminals;

7 for each of the plurality of high speed data frames, receiving a respective indication
8 of its contents;

9 for each of the plurality of high speed data frames, determining whether the high
10 speed data frame is intended for the user terminal;

11 determining that a particular high speed data frame of the superframe is intended for
12 the user terminal; and

13 receiving a data communication contained in the particular high speed data frame.

1 16. The method of claim 15, further comprising:
2 determining a data rate of the data communication from an indication contained in
3 the high speed data frame; and
4 receiving the data communication at the data rate.

1 17. The method of claim 15, further comprising decoding at least a portion of the
2 superframe with a plurality of Walsh codes.

1 18. The method of claim 15, further comprising:
2 decoding the respective indication contained in a high speed data frame using a first
3 coding type;
4 determining that the high speed data frame of the superframe is intended for the user
5 terminal;
6 receiving a data communication contained in the high speed data frame; and
7 decoding the data communications of the high speed data frame using a second
8 coding type that is different from the first coding type.

1 19. The method of claim 15, further comprising:
2 receiving a pilot signal contained in the high speed data frame; and
3 receiving a reverse link power control bit contained in the high speed data frame.

1 20. The method of claim 19, further comprising:
2 determining a channel quality indicator based upon the received pilot signal; and

reporting the channel quality indicator to a transmitting base station.

21. A base station that acts as a transmitter to wirelessly transmit data communications to a plurality of user terminals on a single wireless carrier, the base station comprising:

an antenna;

a Radio Frequency unit coupled to the antenna; and

at least one digital processor coupled to the Radio Frequency unit that executes software instructions causing the base station to:

repeatedly and sequentially wirelessly transmit time division multiplexed superframes to the plurality of user terminals, wherein each time division multiplexed superframe comprises a plurality of high speed data frames;

wherein each of the high speed data frames carries at least one data communication;

and

wherein each of the high speed data frames includes:

a respective indication of at least one user terminal for which the at least one data communication is intended; and

a respective indication of at least one data rate of the high speed data frame.

22. A user terminal that acts as a wireless receiver to wirelessly receive data communications on a wireless carrier, the user terminal comprising:

an antenna;

a Radio Frequency unit coupled to the antenna; and

a digital processor coupled to the Radio Frequency unit that executes software instructions causing the user terminal to:

repeatedly and sequentially wirelessly receive time division multiplexed superframes from a base station, wherein each time division multiplexed superframe comprises a plurality of high speed data frames that are intended for a plurality of user terminals;

for each of the plurality of high speed data frames, receive a respective indication of its contents;

for each of the plurality of high speed data frames, determine whether the high speed data frame is intended for the user terminal;

determine that a particular high speed data frame of the superframe is intended for the user terminal; and

receive a data communication contained in the particular high speed data frame.

~~23.~~ A plurality of software instructions stored on a media that, upon execution by a base station, cause the base station to wirelessly transmit data communications to a plurality of user terminals on a single wireless carrier, the plurality of software instructions comprising:

a set of instructions executed by the base station that cause the base station to repeatedly and sequentially wirelessly transmit time division multiplexed superframes to the plurality of user terminals, wherein each time division multiplexed superframe comprises a plurality of high speed data frames;

wherein each of the high speed data frames carries at least one data communication; and

wherein each of the high speed data frames includes:

a respective indication of at least one user terminal for which the at least one data communication is intended; and

a respective indication of at least one data rate of the high speed data frame.

1 ~~24.~~ A plurality of software instructions stored on a media that, upon execution by
2 a user terminal, cause the user terminal to wirelessly data communications on a wireless
3 carrier, the plurality of software instructions comprising:

4 a set of instructions executed by the user terminal that cause the user terminal to
5 repeatedly and sequentially wirelessly receive time division multiplexed superframes from a
6 base station, wherein each time division multiplexed superframe comprises a plurality of
7 high speed data frames that are intended for a plurality of user terminals;

8 a set of instructions executed by the user terminal that cause the user terminal, for
9 each of the plurality of high speed data frames, receive a respective indication of its
10 contents;

11 a set of instructions executed by the user terminal that cause the user terminal, for
12 each of the plurality of high speed data frames, determine whether the high speed data
13 frame is intended for the user terminal;

14 a set of instructions executed by the user terminal that cause the user terminal
15 determine that a particular high speed data frame of the superframe is intended for the user
16 terminal; and

17 a set of instructions executed by the user terminal that cause the user terminal
18 receive a data communication contained in the particular high speed data frame.